

REENTRY	Identifier: EPI-77 Revision*: 15 Page: 1 of 8
----------------	-----------------------------------------------------

Emergency Management	Emergency Plan Implementing Procedure	For Additional Info: http://EDMS	Effective Date: 01/22/14
----------------------	------------------------------------------	---------------------------------------------------------------	--------------------------

Manual: 16E – Emergency Management – Emergency Plan
Implementing Procedures

USE TYPE 3

Change Number: 340515

*The current revision can be verified on EDMS.

1. PURPOSE AND SCOPE

Reentry into an evacuated area or established control area under operational emergency conditions occurs when necessary to protect people, property, and the environment. Reentry activities include hazard mitigation, damage control, damage assessment, and to verify that EAL initiating conditions are no longer met.

NOTE: *The Recovery phase of the emergency cannot begin until emergency conditions are stable enough to terminate the operational emergency (see EPI-78, “Emergency Event Termination”), and should not be confused with Reentry. Recovery is focused on planning for repair of systems and return to an operating status while Reentry is focused on mitigating hazards, stabilizing operations, securing equipment, or verifying facility condition information.*

This procedure does not apply for entries into the affected area during initial emergency response by fire, medical, or other qualified first responders. Initial emergency response and search and rescue activities are performed by the INL Fire Department.

This procedure provides direction for developing a reentry plan, establishing a reentry team, providing the required pre-briefings including those for emergency exposure (if applicable), and making a reentry into an area or structure affected by a categorized or classified emergency at ICP facilities.

2. INITIATING CONDITION

Personnel need to reenter a facility during an operational emergency to perform mitigation activities such as to stabilize operations, secure equipment, or verify facility condition information.

3. RESPONSIBILITIES

NOTE: *The functions performed by the Emergency Response Organization (ERO) are defined as separate titles, but may be performed by any ERO member with appropriate training.*

3.1 **Emergency Action Manager (EAM):** The EAM is responsible for determining if reentry is necessary, setting reentry objectives, ensuring the reentry plan is developed, approving the reentry plan, and initiating and managing reentry.

REENTRY	Identifier: EPI-77 Revision*: 15 Page: 2 of 8
----------------	-----------------------------------------------------

- 3.2 **Planning Manager**: The Planning Manager is responsible for gathering event data, including, as appropriate, reports from Facility Monitoring Teams and radiological control technicians/Industrial Hygienists regarding conditions inside the facility and making reentry plan recommendations based on assessment of the data. The Planning Manager is also responsible for preparing the Idaho Cleanup Project (ICP) Reentry Emergency Work Permit, obtaining EAM approval, and ensuring pre-job briefings and post-job debriefings are conducted for reentry teams. The Planning Manager is also responsible for ensuring needed resources are obtained.
- 3.3 **Operations Manager**: The Operations Manager is responsible for making reentry plan recommendations to the EAM, and coordinating reentry activities with the incident commander.
- 3.4 **Technical Support Function**: The Technical Support function is responsible for obtaining and providing technical information to support reentry planning.

4. INSTRUCTIONS

4.1 Develop the Reentry Plan

4.1.1 **Planning Manager**: Obtain and assess event-related data.

4.1.1.1 Assess known radiological and/or hazardous material surveillance data to determine areas potentially affected.

4.1.1.1.1 Solicit collective input from industrial hygiene and radiological assessment personnel before making final decisions on chemical and radiation exposure limits. Use data from Facility Monitoring Teams and Technical Support in decision-making activities

4.1.1.1.2 If data is not sufficient to adequately plan reentry, include appropriate data collection surveys as part of the reentry activity.

4.1.1.1.3 Assess whether utilities are functioning to the extent necessary to ensure reentry team safety.

4.1.1.1.4 Work with technical support personnel (e.g., structural engineering) to assess the stability of buildings, structures, processes, etc.

4.1.1.1.5 Consider event scene preservation (e.g., pictures, video) during the reentry.

REENTRY	Identifier: EPI-77 Revision*: 15 Page: 3 of 8
----------------	-----------------------------------------------------

- 4.1.2 **EAM:** For potential radiation exposures:
- 4.1.2.1 Ensure exposure to radioactive material is kept as low as practical.
 - 4.1.2.2 Ensure all authorized emergency radiation exposures are planned using appropriate risk management principles (e.g., mitigated risk versus expected benefit) in accordance with the guidance in Appendix A.
 - 4.1.2.3 Authorize radiation exposures in excess of DOE occupational dose limit (5 rem/yr).
 - 4.1.2.4 Where emergency radiation exposures may reach 25 Rem or greater:
 - 4.1.2.4.1 Ensure only volunteers are utilized who are trained and current Rad Worker II or are qualified Radiological Control Technician.
 - 4.1.2.4.2 Brief volunteers on effects of radiation exposure utilizing the tables contained in Appendix B.
 - 4.1.2.5 Include possible contingencies in the plan.
 - 4.1.2.6 Consider the concepts of time, distance, and shielding when planning work in radiation areas.
 - 4.1.2.7 When use of volunteers is appropriate, ensure they meet the criteria required to carry out the work: physical ability, technical expertise, and currency in HAZWOPER training if potential exposures to hazardous materials exists in addition to radiological exposure.
- 4.1.3 **Planning Manager Function:** Prioritize the reentry activities considering the following:
- A. Benefit achieved from successful reentry operations
 - B. Necessary resources versus available resources
 - C. Availability of qualified personnel for reentry team and for backup support to reentry team
 - D. Time urgency

REENTRY	Identifier: EPI-77 Revision*: 15 Page: 4 of 8
----------------	-----------------------------------------------------

- E. Need to obtain additional information for determining status of facility or systems
- 4.1.4 **Planning Manager Function:** Make risk versus benefit determination.
 - 4.1.4.1 Identify and list known and potential risks to reentry team.
 - 4.1.4.2 Identify expected outcomes and benefits of the reentry.
 - 4.1.4.3 Determine if mitigation measures can be taken to lessen the risk.
 - 4.1.4.4 Ensure estimated benefits outweigh the estimated risk sufficiently enough to warrant reentry. Risks include:
 - A. Spreading contamination
 - B. Worsening an existing release
 - C. Causing another release
 - D. Causing fatalities
 - E. Other conditions.
- 4.1.5 **Planning Manager Function:** Identify resources needed for reentry.
 - 4.1.5.1 Identify equipment needs
 - 4.1.5.2 Identify and obtain primary and backup personnel needs (such as electricians, mechanics, building landlords, and system engineers).
 - 4.1.5.3 Identify and obtain primary and back-up means of communication to be used by reentry personnel.
 - 4.1.5.4 Identify and obtain the appropriate personal protective equipment for reentry personnel.
- 4.1.6 **Technical Support Function:** Obtain technical support data and provide it to the Planning Manager.
 - 4.1.6.1 Identify any of the following documents that may apply to the job being planned:
 - A. Records
 - B. Engineering drawings
 - C. Technical references

REENTRY	Identifier: EPI-77 Revision*: 15 Page: 5 of 8
----------------	-----------------------------------------------------

D. Operating procedures

- 4.1.6.2 Develop a sketch/map showing entry and exit points, routes to and from task areas, and known information about debris, obstacles, barriers, etc. (This sketch/map should be refined and used for the briefing and debriefing process.)
- 4.1.7 **Planning Manager Function**: Obtain approval of reentry plan from the EAM.
- 4.1.8 **EAM**: Approve reentry plan.
- 4.1.8.1 Ensure the reentry preserves the event scene to the extent possible until cognizant investigative authorities determine that recovery or normal operations can resume.
- 4.1.8.2 Ensure the reentry plan is approved by the following:
- A. Incident Commander
 - B. Radiological Control
 - C. Industrial Hygienist
- 4.1.9 **Planning Manager**: Complete blocks 1-11 of Form 150.05, "ICP Reentry Emergency Work Permit"-Page 1, following instructions on the back of the form.

4.2 **Implement the Reentry Plan**

- 4.2.1 **Planning Manager**: Select the reentry team(s) based upon the following:
- A. Job qualifications versus tasks to be accomplished
 - B. Hazards involved
 - C. Required first responder training for the hazards involved (e.g., HAZWOPER, RCRA, radiation worker.)
 - D. Evaluate the need for a team member to be medically trained.
 - E. Ensure all reentry team personnel are qualified for the task for which they are assigned and qualified to work in the expected hazardous environment
 - F. Ensure reentry teams consist of at least two personnel.

REENTRY	Identifier: EPI-77 Revision*: 15 Page: 6 of 8
----------------	-----------------------------------------------------

4.2.2 **Planning Manager:** Ensure a pre-job briefing for each reentry team is completed.

4.2.2.1 Complete blocks 13-16 of Form 150.05A, “ICP Reentry Emergency Work Permit”-Page 2, following the instructions on the back of the form.

4.2.3 **Planning/Operations Manager:** When directed by the EAM, and in coordination with the Incident Commander, dispatch the reentry team.

4.3 **Debrief the Reentry Team(s)**

4.3.1 **Planning Manager:** After the reentry has been completed, conduct or ensure a job debriefing with each reentry team is completed covering the following items:

- A. Job performed and its outcome
- B. Facility status
- C. Exposure(s) received
- D. Location/survey of exposure levels
- E. Conditions encountered
- F. Other possible mitigative actions
- G. Reentry team status and/or availability for additional work
- H. General area observations.

4.3.2 **Planning Manager:** Brief the EAM on the results of the reentry.

5. **RECORDS**

Form 150.05, “ICP Reentry Emergency Work Permit”–Page 1

Form 150.05A, “ICP Reentry Emergency Work Permit”–Page 2

6. **APPENDICES**

Appendix A, Guidance on Dose Limits for Workers Performing Emergency Services

Appendix B, Health Effects of Radiation Exposure

REENTRY	Identifier: EPI-77 Revision*: 15 Page: 7 of 8
----------------	-----------------------------------------------------

Appendix A

Guidance on Dose Limits for Workers Performing Emergency Services

Dose Limit ^a (rem)	Activity	Condition
5	All	
10	Protecting valuable property	Where lower dose is not practicable
25	Lifesaving or protecting large populations	Where lower dose is not practicable
Greater than 25	Lifesaving or protecting large populations	Only on a voluntary basis to persons fully aware of the risks involved

^{a.} Sum of the external Effective Dose Equivalent (EDE) and Committed Effective Dose Equivalent (CEDE) to nonpregnant adults from exposure and intake during an emergency. Workers performing services during an emergency should limit the dose to the lens of the eye to three times the listed values and the dose to any other organ, including skin and extremities, to 10 times the listed value. The limits apply to all doses from an incident, except those received in unrestricted areas as public members during the intermediate phase of the incident. No specific upper limit is given for thyroid exposure.

NOTE: *The information contained in this appendix is from EPA-400-R-92-001, Manual of Protective Action Guides and Protective Actions for Nuclear Incidents.*

REENTRY	Identifier: EPI-77 Revision*: 15 Page: 8 of 8
----------------	------------------------------------------------------------

Appendix B

Health Effects of Radiation Exposure

Table 1

Health Effects Associated with Whole-Body Absorbed Doses Received Within a Few Hours^a

Whole Body Absorbed Dose (rad)	Early Fatalities ^b (percent)	Whole Body Absorbed Dose (rad)	Prodromal Effects ^c (percent affected)
140	5	50	2
200	15	100	15
300	50	150	50
400	85	200	85
460	95	250	98

^a Risks will be lower for protracted exposure periods.

^b Supportive medical treatment may increase the dose at which these frequencies occur by approximately 50 percent.

^c Forewarning symptoms of more serious health effects associated with large doses of radiation.

Table 2

Approximate Cancer Risk to Average Individuals from 25 Rem Effective Dose Equivalent Delivered Promptly

Age at Exposure (Years)	Appropriate Risk of Premature Death (deaths per 1,000 persons exposed)	Average years of Life Lost if premature Death Occurs (Years)
20 to 30	9.1	24
30 to 40	7.2	19
40 to 50	5.3	15
50 to 60	3.5	11

NOTE: *The information contained in this appendix is from EPA-400-R-92-001, Manual of Protective Action Guides and Protective Actions for Nuclear Incidents.*